January 1999

Nebraska Summary 316: Massey Ferguson 243 Diesel 8-speed

Tractor Museum
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SUMMARY OF OECD TEST 1849–NEBRASKA SUMMARY 316
MASSEY FERGUSON 243 DIESEL
8 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed 679 rpm)					
47.6 *(35.5)*	2250	2.93 *(11.10)*	0.430 *(0.261)*	16.26 *(3.20)*	
Standard Power Take-off Speed(540 rpm)					
42.5 *(31.7)*	1789	2.39 *(9.05)*	0.393 *(0.239)*	17.77 *(3.50)*	
VARYING POWER AND FUEL CONSUMPTION					
47.6 *(35.5)*	2250	2.93 *(11.10)*	0.430 *(0.261)*	16.26 *(3.20)*	Air temperature
41.7 *(31.1)*	2319	2.63 *(9.94)*	0.440 *(0.268)*	15.87 *(3.13)*	77°F *(25°C)*
31.9 *(23.8)*	2358	2.17 *(8.21)*	0.476 *(0.289)*	14.68 *(2.89)*	Relative humidity
21.6 *(16.1)*	2388	1.75 *(6.63)*	0.567 *(0.345)*	12.32 *(2.43)*	40%
10.9 *(8.1)*	2412	1.21 *(4.57)*	0.777 *(0.472)*	8.99 *(1.77)*	Barometer
-- --	2424	0.77 *(2.93)*	-- --	-- --	30.1" Hg *(102.0 kPa)*

Maximum Torque - 133.0 lb.-ft. *(180.3 Nm)* at 1248 rpm
Maximum Torque Rise - 19.6%
Torque rise at 1789 engine rpm - 12%

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power 5th(1H) Gear									
37.7 *(28.1)*	2225 *(9.9)*	6.35 *(10.21)*	2244	6.5	0.537 *(0.326)*	13.02 *(2.56)*	174 *(79)*	77 *(25)*	29.8 *(100.9)*
75% of Pull at Maximum Power 5th(1H) Gear									
29.6 *(22.1)*	1655 *(7.4)*	6.72 *(10.82)*	2337	4.7	0.564 *(0.343)*	12.39 *(2.44)*	174 *(79)*	77 *(25)*	29.8 *(100.8)*
50% of Pull at Maximum Power 5th(1H) Gear									
20.7 *(15.4)*	1120 *(5.0)*	6.92 *(11.14)*	2371	3.4	0.665 *(0.404)*	10.51 *(2.07)*	174 *(79)*	77 *(25)*	29.8 *(100.8)*
75% of Pull at Reduced Engine Speed 6th(2H) Gear									
29.8 *(22.2)*	1660 *(7.4)*	6.73 *(10.83)*	1593	4.6	0.468 *(0.285)*	14.92 *(2.94)*	174 *(79)*	77 *(25)*	29.8 *(100.9)*
50% of Pull at Reduced Engine Speed 6th(2H) Gear									
20.8 *(15.5)*	1125 *(5.0)*	6.94 *(11.17)*	1620	3.3	0.502 *(0.305)*	13.91 *(2.74)*	172 *(78)*	77 *(25)*	29.8 *(100.8)*

Location of Test: Silsoe Research Institite Wrest Park, Silsoe, Bedford, England MK45 4HS

Dates of Test: June -July 1999

Manufacturer: AGCO LTD, P.O. Box 62, Banner lane, Coventry, West Midlands, England CV4 9GF

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.839 **Fuel weight** 6.98 lbs/gal *(0.837 kg/l)* **Oil SAE** 15W30 **API service classification** CD **Transmission and hydraulic lubricant** SAE 15W-30 **Front axle lubricant** SAE 15W30

ENGINE: Make Perkins Diesel **Type** three cylinder vertical **Serial No.** U327722D **Crankshaft** lengthwise **Rated engine speed** 2250 **Bore and stroke** 3.74" x 5.00" *(95.0 mm x 127.0 mm)* **Compression ratio** 17.3 to 1 **Displacement** 165 cu in *(2701 ml)* **Starting system** 12volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type front wheel assist **Serial No.** G18382 **Tread width** rear 56.3" *(1430 mm)* to 83.4" *(2130 mm)* front 44.0" *(1118 mm)* to 64.1" *(1629 mm)* **Wheelbase** 76.0" *(1930 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.60 *(2.58)* second 2.35 *(3.78)* third 4.31 *(6.94)* fourth 5.29 *(8.51)* fifth 6.56 *(10.56)* sixth 9.62 *(15.48)* seventh 17.64 *(28.38)* eighth 21.64 *(34.83)* reverse 2.19 *(3.52)*, 8.93 *(14.37)* **Clutch** dual dry disc operated by foot pedal **Brakes** multiple wet disc operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1789 engine rpm **Unladen tractor mass** 5130 lb *(2327 kg)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				2nd(2L) Gear					
25.2 *(18.8)*	4310 *(19.2)*	2.19 *(3.53)*	2353	15.0	0.618 *(0.376)*	11.30 *(2.23)*	172 *(78)*	72 *(22)*	29.8 *(100.8)*
				3rd(3L) Gear					
37.1 *(27.7)*	3425 *(15.2)*	4.06 *(6.54)*	2245	11.0	0.550 *(0.335)*	12.69 *(2.50)*	178 *(81)*	77 *(25)*	29.8 *(100.9)*
				4th(4L) Gear					
37.4 *(27.9)*	2720 *(12.1)*	5.16 *(8.30)*	2252	8.0	0.540 *(0.329)*	12.92 *(2.55)*	180 *(82)*	77 *(25)*	29.8 *(100.9)*
				5th(1H) Gear					
37.7 *(28.1)*	2225 *(9.9)*	6.35 *(10.21)*	2244	6.5	0.537 *(0.326)*	13.02 *(2.56)*	174 *(79)*	77 *(25)*	29.8 *(100.9)*
				6th(2H) Gear					
37.3 *(27.8)*	1470 *(6.5)*	9.52 *(15.32)*	2245	4.3	0.544 *(0.331)*	12.84 *(2.53)*	176 *(80)*	77 *(25)*	29.8 *(100.8)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Disengaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
				Maximum Power 5th(1H) Gear					
37.7 *(28.1)*	2435 *(10.8)*	5.81 *(9.35)*	2244	11.9	0.542 *(0.330)*	12.89 *(2.54)*	174 *(79)*	75 *(24)*	30.0 *(101.7)*
				75% of Pull at Maximum Power 5th(1H) Gear					
30.3 *(22.6)*	1810 *(8.1)*	6.28 *(10.11)*	2338	8.4	0.553 *(0.337)*	12.62 *(2.49)*	176 *(80)*	73 *(23)*	30.0 *(101.7)*
				50% of Pull at Maximum Power 5th(1H) Gear					
21.1 *(15.7)*	1205 *(5.4)*	6.57 *(10.57)*	2376	5.8	0.644 *(0.392)*	10.84 *(2.14)*	172 *(78)*	75 *(24)*	30.0 *(101.7)*
				75% of Pull at Reduced Engine Speed 6th(2H) Gear					
30.4 *(22.7)*	1820 *(8.1)*	6.26 *(10.08)*	1593	8.6	0.468 *(0.285)*	14.92 *(2.94)*	178 *(81)*	77 *(25)*	30.0 *(101.7)*
				50% of Pull at Reduced Engine Speed 6th(2H) Gear					
21.1 *(15.7)*	1205 *(5.4)*	6.56 *(10.55)*	1615	5.7	0.482 *(0.293)*	14.47 *(2.85)*	172 *(78)*	77 *(25)*	30.0 *(101.7)*
				MAXIMUM POWER IN SELECTED GEARS					
				4th(4L) Gear					
35.4 *(26.4)*	2855 *(12.7)*	4.65 *(7.48)*	2281	15.0	0.568 *(0.345)*	12.30 *(2.42)*	176 *(80)*	75 *(24)*	30.0 *(101.7)*
				5th(1H) Gear					
37.7 *(28.1)*	2435 *(10.8)*	5.81 *(9.35)*	2244	11.9	0.542 *(0.330)*	12.89 *(2.54)*	174 *(79)*	75 *(24)*	30.0 *(101.7)*
				6th(2H) Gear					
38.4 *(28.6)*	1600 *(7.1)*	8.99 *(14.46)*	2253	7.3	0.533 *(0.324)*	13.10 *(2.58)*	176 *(80)*	73 *(23)*	30.0 *(101.7)*

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive Disengaged dB(A)	Engaged dB(A)
Maximum Sound level in 3rd (3L) gear	95.0	95.0
Bystander	--	--

TIRES AND WEIGHT

	Tested Without Ballast
Rear tires - No.,size, ply & psi*(kPa)*	Two 14.9-28; 6 ;11*(76)*
Front tires - No.,size, ply & psi*(kPa)*	Two 320/70R20; **;12*(83)*
Height of Drawbar	18.3 in *(465 mm)*
Static Weight with operator- Rear	3165 lb *(1435 kg)*
- Front	2130 lb *(967 kg)*
- Total	5295 lb *(2402 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet manufacture's claim of 2833 lbs *(1285 kg)* lift at 3 point hitch link ends. The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **1849**, Nebraska Summary 316, September 18, 2000.

Brent T. Sampson
Test Engineer

L.L. Bashford
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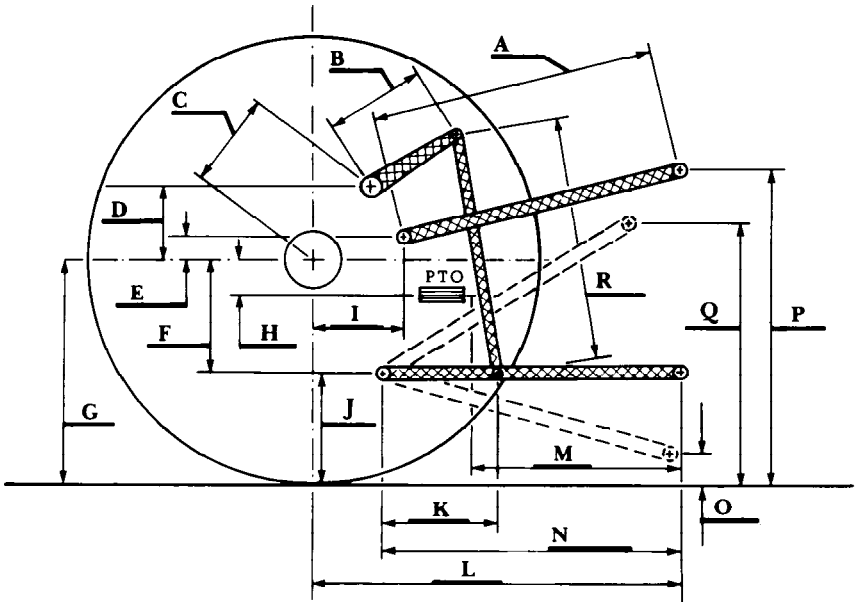
Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II
Quick Attach: None
Maximum Force Exerted Through Whole Range: 1955 lbs *(8.7 kN)* (at the frame)
2380 lbs *(10.6 kN)* (at the hitch points)

i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2700 psi *(186 bar)*
ii) Pump delivery rate at minimum pressure:	11.9 GPM *(45.0 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	11.2 GPM *(42.5 l/min)*
Delivery pressure:	2495 psi *(172 bar)*
Power:	16.3 HP *(12.18 kW)*



HITCH DIMENSIONS AS TESTED	inch	NO LOAD *mm*
A	27.0	*686*
B	10.5	*267*
C	12.0	*304*
D	9.2	*233*
E	8.1	*205*
F	8.3	*212*
G	25.2	*640*
H	5.5	*140*
I	7.3	*186*
J	16.9	*428*
K	16.9	*428*
L	34.3	*871*
M	21.2	*538*
N	35.6	*903*
O	7.8	*197*
P	40.9	*1038*
Q	33.9	*862*
R	24.0	*610*

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